

Engineer II Full Descriptions and Requirements

The Road Services Division, Engineering Services Section, is currently recruiting for full-time Career Service positions at the Engineer II level in the following programs: Bridge, Construction, Design, CADD, Drainage, Facilities, and Survey. This recruitment will also be used to create an eligible list to fill special duty assignments, term limited temporary (TLT) and/or seasonal short term temporary assignments depending on the need of the program.

JOB DUTIES:

BRIDGE AND STRUCTURAL DESIGN UNIT

Inspection:

1. Perform routine and special inspections of existing bridges and roadway structures.
2. As a bridge inspector, recognize bridge deficiencies and recommend cost-effective repairs to maximize useful life of bridge inventory.
3. Prepare work orders to address needed repairs by county maintenance crews.
4. Participate in project development work on a bridge work order task specific assignment; e.g. engineering drawings, construction planning, permit coordination, cost estimating, product research.
5. Enter data into the bridge inventory database and review already-entered data to ensure compliance with the National Bridge Inspection (NBI) Standards.
6. Prepare bridge inspection reports per WSDOT Bridge Inspection Standards coding and Federal National Bridge Inspection (NBI) Standards.

Project Management:

1. Support the Bridge & Structural Design Unit with design, development and review of technical reports, plans, specifications and estimates.
2. Perform civil engineering design and project management duties of complex road and bridge design projects in support of and under the direction of a senior project manager.
3. Prepare and review design plans and specifications.
4. Assure conformance with King County standards and environmental regulations.
5. Coordinate with consultants, regulatory agencies, utility companies, support staff and the public to resolve project issues.

Bridge & Structural Design Experience, Qualifications, Knowledge, Skills:

- Bachelors of Science in Civil Engineering Education or an equivalent combination of education and experience that demonstrates one's knowledge of engineering principles
- Minimum two years field engineering experience coordinating construction activities
- Experience applying National Bridge Inspection Standards and in the use of the Washington State Department of Transportation's WSBIS coding procedures
- Experience with structural layout and design using AutoCAD.
- Experience with construction project schedules including review, analysis and tracking of progress
- Experience performing field evaluation / review and provide recommendations for project scope and construction cost estimates

- Experience effectively managing multiple projects and priorities under close deadlines and changing priorities
- Skill in using Microsoft Office software such as Access, Excel, Word, PowerPoint and Project
- Skill using AutoCAD, GPS, GIS programs
- Ability to read, interpret and develop engineering plans, specifications and cost estimates for road, bridge, stream and landfill construction
- Ability to work with diverse individuals and customers and maintaining effective relationships
- Ability to communicate clearly and effectively both orally and in writing
- Ability in handling politically sensitive issues
- Ability to research and interpret applicable codes, policies and regulations
- Ability to respond to frequently changing work responsibilities

Desirable Qualifications:

- Skill in consultant contract negotiation and administration
- Experience in use of the Bridgeworks sequel server database for bridge inspection reporting and support to other staff using this complex program

CONSTRUCTION AND PAVEMENT MANAGEMENT UNIT

Construction Inspection:

1. Perform fieldwork at various construction sites throughout King County.
2. Act as the inspector on construction projects that includes bridges, retaining walls, large culverts (concrete and steel), drainage systems and facilities, earthwork, paving (concrete and asphalt), illumination, traffic signal systems, traffic guardrail and barrier, stream bank restoration and habitat features, mitigation sites, landscaping and complex traffic control setups.
3. Perform on-site construction inspection and contract administration in accordance with the Local Agency Guidelines (LAG) for Contracting Agencies, WSDOT Construction Manual, the WSDOT Standard Specifications and the Contract Documents.
4. Act as inspector on the countywide overlay projects. This includes inspection of paving, grinding, shoulder rocking, loop installation and striping operations. Duties include calculating and tracking HMA yields, pavement and grinding limit layout, coordination of loop and striping installation with traffic support personnel to ensure regulatory compliance.
5. Support the Pavement Management Program.
6. Act as the primary contact between the contractor and King County.
7. Prepare contractor payment progress estimates.
8. Estimate, measure and calculate material quantities for contract bid items.
9. Coordinate field work task with various support functions, e.g. survey, materials, environmental.
10. Maintain complete records of all project documentation, change orders, field work.

Construction and Pavement Management Experience, Qualifications, Knowledge, Skills:

- Bachelors of Science in Civil Engineering Education or an equivalent combination of education and experience that demonstrates one's knowledge of engineering principles
- A minimum of four (4) years progressively responsible construction experience with a strong emphasis in construction practices including, but not limited to: constructing embankments, excavations, bridge foundations, bridge substructure, bridge superstructure, drainage improvement projects, retaining walls, concrete placement, grading, surfacing, paving, membrane liner installation, stream bank protection, pavement marking, traffic barrier and guardrail, illumination and traffic signal construction
- A minimum of four (4) years demonstrated experience with construction contracts and claim avoidance and/or claim resolution
- Experience in road, bridge, stream and landfill construction methods and inspection practices applicable to DOT construction contracts
- Experience with construction project schedules including review, analysis and tracking of progress
- Experience with construction project schedules including review, analysis and tracking of progress
- Experience performing field evaluation / review and provide recommendations for project scope and construction cost estimates
- Experience effectively managing multiple projects and priorities under close deadlines and changing priorities
- Skill in using Microsoft Office software such as Access, Excel, Word, PowerPoint and Project
- Skill using AutoCADD, GPS, GIS programs
- Ability to read, interpret and develop engineering plans, specifications and cost estimates for road, bridge, stream and landfill construction
- Ability to work with diverse individuals and customers and maintaining effective relationships
- Ability in handling politically sensitive issues
- Ability to communicate clearly and effectively both orally and in writing
- Ability to research and interpret applicable codes, policies and regulations
- Ability to respond to frequently changing work responsibilities

Desirable Qualifications:

- Skill in consultant contract negotiation and administration

ROAD AND TRAFFIC ENGINEERING UNIT**Design:**

1. Support road, bridge and drainage Capital Improvement Projects (CIPs) in accordance with applicable standards and environmental regulations; coordinate with consultants, regulatory agencies, support staff and the public to resolve project issues.

2. Assist or act as project manager on specific task or assignment from inception to construction completion.
3. Prepare designs, plan details, specifications and cost estimates for road, bridge and drainage projects; coordinate and monitor project scope, schedule, and budget; review technical reports.
4. Prepare and/or review right-of-way plans and legal descriptions.
5. Perform field assessments.

Design and CADD:

1. Provide the technical CADD and Civil 3D expertise to help engineers develop engineering plans for roadway, traffic, bridge, and drainage projects in accordance with King County Road CADD Standards
2. Develop, maintain, and update the King County Road CADD Standards and Civil 3D templates for engineers to use in plans preparation.
3. Debug and resolve issues pertaining to CADD and Civil 3D.
4. Prepare designs, plan details, specifications and cost estimates for road, traffic, bridge and drainage projects.
5. Perform field assessments.
6. Prepare and/or review right-of-way plans and legal descriptions.

Road and Traffic Engineering Experience, Qualifications, Knowledge, Skills:

- Bachelors of Science in Civil Engineering Education or an equivalent combination of education and experience that demonstrates one's knowledge of engineering principles
- Experience with construction project schedules including review, analysis and tracking of progress
- Experience performing field evaluation / review and provide recommendations for project scope and construction cost estimates
- Experience effectively managing multiple projects and priorities under close deadlines and changing priorities
- Knowledge of technical disciplines including but not limited to Geotechnical, Environmental, Hydraulics, Traffic, Construction, Survey, etc. required for implementation of roadway, traffic, bridge and drainage projects
- Experience in using CADD and Civil3D design software (or equivalent) to design road, bridge and drainage projects
- Knowledge and experience using the WSDOT's Design Manual
- Demonstrated skill working with King County Road Standards and CADD Standards
- Skill in using Microsoft Office software such as Access, Excel, Word, PowerPoint and Project
- Skill using AutoCADD, GPS, GIS programs
- Ability to read, interpret and develop engineering plans, specifications and cost estimates for road, bridge, stream and landfill construction
- Ability to work with diverse individuals and customers and maintaining effective relationships
- Ability in handling politically sensitive issues
- Ability to communicate clearly and effectively both orally and in writing

- Ability to apply ADA standards and guidelines
- Ability to conduct field work for roads, traffic, bridge and drainage projects.
- Ability to prepare written reports or technical memos based on the findings from project conceptual studies, traffic analyses, environmental studies, structural analyses and condition inspections, etc.
- Ability to research and interpret applicable codes, policies and regulations
- Ability to respond to frequently changing work responsibilities

Desirable Qualifications:

- Skill in consultant contract negotiation and administration

DRAINAGE UNIT

Design:

1. Perform a broad scope of fully proficient engineering design, project management, drainage design and related responsibilities as a project engineer in support of the Drainage Unit's engineering requirements.
2. Perform watershed analysis and drainage design.
3. Prepare drainage design reports for roadway drainage projects.
4. Prepare construction plans, specifications and project cost estimates for roadway drainage system and other roadway related design projects.
5. Solve roadway drainage problems and road repair projects.
6. Assist or act as project manager for specific tasks or assignments from inception to construction; coordinate and monitor project scope, schedule and budget.
7. Prepare road drainage plans, slide repair plans and drainage design reports to ensure projects meet King County Road Standards, King County Surface Water Design Manual requirements and other environmental permitting regulations of local, state and federal authorities.
8. Perform field surveys to support roadway drainage system design and other roadway related design projects.

Design and CADD:

1. Provide technical CADD and Civil 3D expertise to develop engineering plans for roadway, facilities and drainage construction projects.
2. Provide training and technical assistance to engineering staff in the use of CADD and Civil 3D for engineering plan preparation.
3. Assist in debugging and resolving issues pertaining to CADD and Civil 3D.
4. Perform watershed analysis and drainage design.
5. Prepare drainage design reports for roadway drainage projects.
6. Prepare construction plans, specifications and project cost estimates for roadway drainage system and other roadway related design projects.
7. Prepare road drainage plans, slide repair plans and drainage design reports to ensure projects meet King County Road Standards, King County Surface Water Design Manual requirements and other environmental permitting regulations of local, state and federal authorities.

8. Perform field surveys to support roadway drainage system design and other roadway related design projects.

Drainage Experience, Qualifications, Knowledge, Skills

- Bachelors of Science in Civil Engineering Education or an equivalent combination of education and experience that demonstrates one's knowledge of engineering principles
- Minimum of four (4) years demonstrated experience related to engineering design, CADD and Civil 3D production, surveying, construction, inspection, permitting, design, contract specification preparation, permit applications, drainage system design, and roadway repair projects
- Experience preparing contract engineering plans and specifications
- Experience with construction project schedules including review, analysis and tracking of progress
- Experience performing field evaluation / review and provide recommendations for project scope and construction cost estimates
- Experience effectively managing multiple projects and priorities under close deadlines and changing priorities
- Knowledge of watershed analysis, field survey and drainage system design
- Experience with hydrology and hydraulic design for storm drainage systems
- Demonstrated skill working with King County Road Standards and King County Surface Water Design Manual
- Skill in using Microsoft Office software such as Access, Excel, Word, PowerPoint and Project
- Skill using AutoCADD, GPS, GIS programs
- Ability to read, interpret and develop engineering plans, specifications and cost estimates for road, bridge, stream and landfill construction
- Ability to work with diverse individuals and customers and maintaining effective relationships
- Ability in handling politically sensitive issues
- Ability to communicate clearly and effectively both orally and in writing
- Ability to research and interpret applicable codes, policies and regulations
- Ability to respond to frequently changing work responsibilities

Desirable Qualifications:

- Skill in consultant contract negotiation and administration

FACILITIES UNIT

1. Perform building inspection.
2. Monitor routine facility contract maintenance work.
3. Prepare new requests for contract services and construction.
4. Prepare plans, specifications, cost estimates for building construction, repairs, and other engineering documents.
5. Direct the investigation of storm drainage system failures and problems.

6. Design improvements to facilities and prepare plans for stormwater detention and treatment facilities.
7. Design for certification under the United States Green Building Council.
8. Perform preliminary field surveys in support of maintenance projects.

Facilities Engineering Experience, Qualifications, Knowledge, Skills:

- Bachelors of Science in Civil Engineering Education or an equivalent combination of education and experience that demonstrates one's knowledge of engineering principles
- Four (4) years of practical roadway drainage system and other roadway related design experience
- Experience with construction project schedules including review, analysis and tracking of progress
- Experience performing field evaluation / review and provide recommendations for project scope and construction cost estimates
- Knowledge of watershed analysis, field survey, drainage system design, storm water detention/retention design
- Knowledge of utility franchise agreements
- Experience in using CADD and Civil3D design software (or equivalent) to design road, bridge and drainage projects
- Demonstrated skill working with King County Road Standards and CADD Standards
- Skill in using hydrologic and hydraulic modeling software
- Skill in using Microsoft Office software such as Access, Excel, Word, PowerPoint and Project
- Skill using AutoCADD, GPS, GIS programs
- Ability to read, interpret and develop engineering plans, specifications and cost estimates for road, bridge, stream and landfill construction
- Ability to work with diverse individuals and customers and maintaining effective relationships
- Ability in handling politically sensitive issues
- Ability to communicate clearly and effectively both orally and in writing
- Ability to communicate clearly and effectively both orally and in writing
- Ability to apply ADA standards and guidelines

Desirable Qualifications:

- Skill in consultant contract negotiation and administration

SURVEY UNIT

1. Oversee survey crew activities; direct the survey crew on procedures for the day.
2. Conduct various types of surveys including GPS, property, legal, boundary, topographic, hydrographic, control and construction surveys.
3. Layout centerline alignment staking, rights-of-way and slope easement staking, slope staking, bluetops, bridge control, and reference points for related construction layout.
4. Conduct preliminary surveys such as roads, flood control projects, building sites, setting property corners, and perform geodetic control surveys.

5. Operate Global Positioning Systems (GPS), total stations, electronic data collectors, digital theodolites, theodolites, levels and other complex survey instruments.
6. Transfer field data to office computers, edit files and construct digital terrain models for office staff review.
7. Calibrate and adjust total stations, digital theodolites, theodolites, levels and other survey equipment.
8. Read and interpret design plans and drawings of roads and structures. Perform all necessary field computations (i.e. traverses, intersection details, grade lines, elevation locations, triangulation, etc.) to accomplish field surveys on assigned projects.

Survey Experience, Qualifications, Knowledge, Skills

- Bachelors of Science in Civil Engineering Education or an equivalent combination of education and experience that demonstrates one's knowledge of engineering principles
- Experience conducting preliminary surveys such as roads, flood control projects, building sites, setting property corners, and perform geodetic control surveys.
- Experience with construction project schedules including review, analysis and tracking of progress
- Experience performing field evaluation / review and provide recommendations for project scope and construction cost estimates
- Experience effectively managing multiple projects and priorities under close deadlines and changing priorities
- Experience in calibrating and adjusting total stations, digital theodolites, levels and other survey equipment
- Skill in accurate layout of centerline alignment staking, rights-of-way and slope easement staking, slope staking, and related construction layout.
- Skill in reducing and analyzing survey field notes and information/codes from data collectors in preparation for use in AutoCAD / Eagle Point Software.
- Skill in using Microsoft Office software such as Access, Excel, Word, PowerPoint and Project
- Skill using software applications relative to surveying and mapping programs such as AutoCAD, and Eagle Point.
- GPS and GIS programs and equipment
- Ability to read, interpret and develop engineering plans, specifications and cost estimates for road, bridge, stream and landfill construction
- Ability to work with diverse individuals and customers and maintaining effective relationships
- Ability in handling politically sensitive issues
- Ability to communicate clearly and effectively both orally and in writing
- Ability to prepare written reports or technical memos based on the findings from project conceptual studies, traffic analyses, environmental studies, structural analyses and condition inspections, etc.

Desirable Qualifications:

- Skill in consultant contract negotiation and administration